

#### REMARKS

Claims 1-3, 5-8, 10-20 and 22-31 are currently pending in the present application. Reconsideration is respectfully requested in light of the arguments and amendments set forth herein. The allowability of claims 6 and 28 is gratefully acknowledged.

#### OBJECTIONS TO THE SPECIFICATION UNDER 37 C.F.R. §1.75(d)(1):

The specification was objected to under 37 C.F.R. §1.75(d)(1) MPEP §608.01(o) on the grounds that the specification failed to provide proper antecedent basis for the claimed subject matter. Paragraphs 53 and 57 of the present application have been amended to clearly set forth that which was clearly illustrated in the originally-filed drawings. Specifically, paragraph 53 was amended to clearly set forth that the cavity 162 is "completely encapsulated," as is clearly illustrated in Figs. 12 and 13 of the originally-submitted application, while paragraph 59 has been amended to clearly set forth that the plurality of bushing removal/insertion tool engagement surfaces 190 each extend radially outward from the associated bushing sleeve 60 "in a cantilevered manner," as is clearly illustrated in Fig. 16 of the original application. Applicants assert that no new subject matter was added to the application with these amendments.

#### REJECTIONS UNDER 35 U.S.C. §112:

Claims 10, 11 and 22-31 were rejected under 35 U.S.C. §112, second paragraph, as failing to comply with the written description requirement. Specifically, claim 10 was rejected under the grounds that the specification neither discloses a structure of a completely encapsulated cavity, nor the importance of such feature. As noted above, paragraph 53 of the specification has been amended to clearly set forth that which was disclosed in the drawings of the application as filed with respect to a completely encapsulated cavity. The benefits of the cavity are described in paragraph 53, where the application states "stress is concentrated on the axle at locations proximate the connections between the trailing arms 12 and the axle

22 by preventing the axle 22 from bending as compared to locations along the length of the axle not connected with the trailing arms 112... the cavity 162 reduces the localized stress proximate the connection points between the trailing arms 112 and the axle 22.” With respect to claim 22, the specification was rejected on the grounds that it neither disclosed the structure of the cantilevered lip nor the importance of such feature. As discussed above, paragraph 59 has been amended in order to clearly described that which was disclosed in the drawings of the originally-submitted application. The benefits of the cantilevered bushing removal/insertion tool engagement surfaces are described in paragraph 59, where the application states that “the engagement surfaces 190 cooperate to increase the area available for engagement of the tool, as compared to a trailing arm that provides only an end surface of the bushing sleeve 60.”

REJECTIONS UNDER 35 U.S.C. §102:

Claim 12 was rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent Application Publication No. 2002/0130480 to VanDenberg. Claim 12 defines a suspension system for suspending a vehicle frame above a plurality of ground-engaging wheels that comprises, among other things, a pair of trailing arms each comprising a first end and a second end, wherein the second end of each trailing arm comprises a lip extending radially outward from an aperture and at least one engagement surface extending radially outward from the lip and adapted to abut a bushing-removal tool. VanDenberg does not disclose a lip extending radially outward from an aperture and at least one engagement surface extending radially outward from the lip and therefore cannot anticipate the present claim. Specifically, VanDenberg discloses a perimeter 45 that includes perimeter walls 47 and 49. See, VanDenberg ¶136. Moreover, it is noted that VanDenberg fails to disclose using the perimeter of the bushing aperture as disclosed therein as an abutment surface for a bushing removal and Applicants fail to see how the same would be accomplished.

Accordingly, claim 12 is in condition for allowance. Claims 13-15 depend from claim 12 which is in condition for allowance, as noted above, and are therefore also in condition for allowance.

REJECTIONS UNDER 35 U.S.C. §103:

Claims 1-3 were rejected under 35 U.S.C. §103 as being unpatentable over VanDenberg in view of Hetmann, U.S. Patent No. 3,904,300. Claim 1 defines a suspension system for suspending a vehicle frame above a plurality of ground-engaging wheels that comprises a wheel-carrying axle comprising a first end and a second end, and a pair of frame bracket assemblies each comprising a resiliently-bushed pivotable connection defining a pivot axis, wherein the frame bracket assemblies operably couple to opposite sides of the vehicle frame, and wherein the resiliently-bushed pivotable connection comprises a substantially cylindrically-shaped bushing. Claim 1 further defines the suspension system as comprising a pair of trailing arms each comprising a first end operably coupled to the first end and the second end of the axle, respectively, and a second end comprising an aperture that receives the bushing of one of the frame bracket assemblies therein, wherein the aperture of the second end of the trailing arm is oval-shaped, thereby causing a non-symmetrical compression of the bushing about the pivot axis.

It is well established law that "the scope of pertinent prior art has been defined as that reasonably pertinent to the particular problem with which the inventor was involved." *Lindemann Maschine Fabrik GmbH. v. American Hoist and Derrick Co.*, 730 F.2d 1452, 1460, 221 U.S.P.Q. 481, 487 (Fed. Cir. 1984). (quoting *Stratoflex, Inc. v. Arrowquip Corp.*, 713 F.2d 1530, 1535, 218 U.S.P.Q. 871, 876 (Fed. Cir. 1983)). Further, in order to find an invention obvious in light of a combination of references, there must be something present in the teachings of those references to suggest the claimed invention to one skilled in the art. *W.L. Gore and Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1551, 220 U.S.P.Q. 303, 311 (Fed. Cir. 1983) (citing *In re Bergel*, 292 F.2d 955, 956-57, 130 U.S.P.Q. 206, 208 (CCPA 1961)). Further, the proper test for evaluating prior art under 35 U.S.C. §103 is whether or not the prior

art, either individually or taken together, can be seen as suggesting the Applicant's solution to the problem which the invention addresses. *Rosemont, Inc. v. Beckman Instrument, Inc.*, 732 Fed.2d. 1540, 1546, 221, U.S.P.Q. 1, 7 (Fed. Cir. 1984). Moreover, to imbue one of ordinary skill in the art with the knowledge of the invention in suit, when no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of hindsight syndrome where that which only the invention taught is used against its teacher. *In re Fine*, 837 Fed.2d 1071, 1075, 5 U.S.P.Q.2d 1596, 1600 (citing *W.L. Gore and Assocs., Inc. v. Garlock, Inc.*, 721 Fed.2d 1540, 1553, 220 U.S.P.Q. 303, 312-313 (Fed. Circuit 1983)).

Applicants submit that Hetmann is non-analogous art. Specifically, Hetmann discloses an elastic joint and method of assembly for interconnecting steering linkages, especially of motor vehicles. Steering linkages are not analogous to suspension systems as is the subject matter of the present application and claims at issue. Further, Hetmann lacks suggestion or motivation to solve the current problem. Specifically, the current claim defines a suspension system that includes oval-shaped bushing receiving apertures thereby causing nonsymmetrical compression of the bushings about the associated pivot axis and alternating the lateral movement of the entire suspension system while leaving the amount of roll available unchanged, versus Hetmann that discloses providing a transmission of steering forces in an entirely rigid manner. See Hetmann, column 4, lines 3-23. Moreover, Applicants submit that the motivation for combining Hetmann with VanDenberg is based on a hindsight reconstruction using the Applicant's definition of the problem and the claimed solution as a roadmap for such combination. Therefore, neither VanDenberg nor Hetmann either singularly or held in combination, teach, motivate, or suggest that which is defined in independent claim 1.

Accordingly, claim 1 is in condition for allowance. Claims 2 and 3 depend from claim 1 which is in condition for allowance, as noted above, and are therefore also in condition for allowance.

Claims 7 and 8 were rejected under 35 U.S.C. §103(a) as being unpatentable over VanDenberg in view of Dudding et al., U.S. Patent Application Publication No. 2004/0056446, and in further view of Chan et al., U.S. Patent No. 7,048,288. Claim 7 defines a suspension system for suspending a vehicle frame above a plurality of ground-engaging wheels that comprises a wheel-carrying axle comprising a first end and a second end, and a pair of frame bracket assemblies each comprising a frame bracket and a resiliently-bushed pivotable connection, wherein the frame bracket assemblies operably couple to opposite sides of the vehicle frame. Claim 7 further defines the suspension system as comprising a pair of I-beam shaped trailing arms each comprising a top plate, a bottom plate, a web extending between the top and bottom plates, a first end operably coupled to the first end and the second end of the axle, respectively, and a second end comprising an aperture that receives the resiliently-bushed pivotable connection of one of the frame bracket assemblies therein, wherein the top plate includes a first thickness substantially proximate the first end and a second thickness substantially proximate the second end that is less than the first thickness. Chan is cited in the rejection as disclosing a vehicle suspension trailing beam that teaches a top plate including a first thickness substantially proximate a first end and a second thickness substantially proximate a second end that is less than the first thickness. It is noted that claim 7 of the present application defines a top plate that includes a first thickness and a second thickness, and that "thickness" is clearly defined in paragraph 49, wherein the present application states "as best illustrated in Fig. 5, the upper flange 72 varies in thickness along the length of the trailing arm generally increasing in thickness from the bushing sleeve 60 to the air spring seat 64." The specification further clearly sets forth that "the width of the upper flange 72 may also vary depending upon the variation in design stresses along the flange and the size of the trailing arm 12." While Chan et al. may disclose an arm that varies in width along the length thereof, it does not disclose an arm having a top plate that varies in thickness along the length thereof.

Therefore, neither VanDenberg, nor Dudding et al., nor Chan et al. either singularly or held in combination render obvious that which is defined in independent claim 7.

Accordingly, claim 7 is in condition for allowance. Claim 8 is dependent from claim 7 which is in condition for allowance, as noted above, and is therefore also in condition for allowance.

Claims 5, 13, 22-27 and 29 were rejected under 35 U.S.C. §103(a) as being unpatentable over VanDenberg '480. Claim 5 defines a suspension system that includes, among other things, a pair of trailing arms each comprising a second end having an aperture that receives a bushing from one pair of frame bracket assemblies therein, the aperture defining an inner surface, wherein the inner surface is roughed. Claim 5 was rejected on the grounds that it would have been obvious to one of ordinary skill in the art at the time of the invention to provide a rough inner surface or to increase the roughness so as to increase the rotational resistance caused since it is old and well-known that bushings are often press fit or vulcanized for this purpose. It is noted that providing a press-fit of a bushing within a particular aperture does not result in a roughed-inner surface of such aperture, and that vulcanizing relates to treating the material of which the bushing itself would be constructed, and also does result in a rough-surface within the interior of the aperture, nor would this approach render obvious a roughed inner surface. Moreover, the apparatus as defined in claim 5 would not require special toolings so as to press fit the bushing into the aperture, nor would it require a separate process of vulcanizing the bushing material, and therefore cannot be rendered obvious in light of such processes.

Independent claim 22 was rejected on the grounds that it would have been obvious to one of ordinary skill in the art at the time of the invention to manufacture the trailing arms according to old and well-known metal forming processes such as casting, welding, forging, hydroforming, magniforming, etc. However, claim 22, as amended, defines a suspension system that comprises, among other things, a pair of trailing arms that each include a second end having a cantilevered lip extending radially outward from an aperture thereof. VanDenberg '480 does not disclose a

cantilevered lip that would provide a sufficient area so as to abut an associated hanger bracket and define operating limits, as illustrated in Figs. 17A and 17B.

Claims 10, 11, 21, 30 and 31 were rejected under 35 U.S.C. §103(a) as being unpatentable over VanDenberg '480 in view of Smith et al., U.S. Patent No. 6,241,266. Claim 10 defines, as amended, a suspension system that comprises, among other things, a pair of trailing arms including a first end having a mating surface that comprises a cavity that is completely encapsulated when the trailing arm is coupled to the axle, thereby reducing a localized stress transferred from the trailing arm to the axle. Neither VanDenberg '480 nor Smith et al., '266 disclose such a configuration, either singularly or held in combination. Such an encapsulated cavity simultaneously reduces localized stress as transmitted from the axle to the trailing beam and corrosion problems that would exist should the cavity be exposed to ambient conditions.

Claims 16-18 and 20 were rejected under 35 U.S.C. §103(a) as being unpatentable over Dilling et al., U.S. Patent No. 5,366,237. Claim 16 defines a suspension system that comprises, among other things, a pair of trailing arms each comprising an outwardly-extending shock support tang operably coupled to a shock absorber, wherein each of the trailing arms comprises a single-cast piece. Although Dilling et al. does disclose an outwardly-extending shock-absorbing tang, Dilling et al. fails to disclose such a tang as being formed as an integral part of the associated structure. In fact, Dilling et al. does not disclose how the shock-absorbing tang is attached to the associated structure. Such formation results in a significant reduction of cost by eliminating separate manufacturing steps.

Claim 18 defines a suspension system that comprises, among other things, a pair of trailing arms, each including a second end having a top surface comprising a first portion and a second portion, wherein the second portion is adapted to support an air spring thereon, and wherein the second portion extends above the first portion, thereby substantially reducing an amount of contact between the trailing arm and a boot of the air spring when the air spring is in a deflated condition. Claim 18 was

rejected on the grounds that Dilling et al. discloses a top surface comprising a first portion and a second portion, wherein the second portion is adapted to support one of a pair of air springs therein, wherein the second portion extends above the first portion. However, Dilling et al. does not disclose an elevated portion that would substantially reduce an amount of contact between a trailing arm and a boot of an air spring when the air spring is in the deflated condition and therefore does not render obvious that which is defined in claim 18. It is noted that the two-surface configuration of the Dilling et al. reference does not provide any additional clearance from the bladder of an air spring when the air spring is deflated.

Claims 14 and 15 were rejected under 35 U.S.C. §103(a) as being unpatentable over VanDenberg in view of Richardson, U.S. Patent No. 5,836,698, while claim 19 was rejected under 35 U.S.C. §103(a) as being unpatentable over Dilling et al., U.S. Patent No. 5,366,237 in view of Dudding et al. Applicants believe these rejections to be moot in view of the amendments and remarks noted above.

Accordingly, claims 1-3, 5-8, 10-20, and 22-31 are believed to be condition for allowance, and a Notice of Allowability is earnestly solicited.

Respectfully submitted,

By: Price, Heneveld, Cooper,  
DeWitt & Litton, LLP

Dated: February 13, 2007

/Brian E. Ainsworth/

Brian E. Ainsworth  
Registration No. 45 808  
695 Kenmoor, S.E.  
Post Office Box 2567  
Grand Rapids, Michigan 49501  
(616) 949-9610

BEA:kjc